

ABSTRACT

A method for growing single-wall carbon nanotubes involves preparing a catalyst
5 comprising catalytic metals, iron and molybdenum, and magnesium oxide support
material and contacting the catalyst with a gaseous carbon-containing feedstock at a
sufficient temperature and for a sufficient contact time to make single-wall carbon
nanotubes. The weight ratio of iron and molybdenum can range from about 2 to 1 to
about 10 to 1 and the metals loading up to about 10 wt% of the MgO. The catalyst can be
10 sulfided. Methane is a suitable carbon-containing feedstock. The process can be
conducted in batch, continuous or semi-continuous modes, in reactors, such as a transport
reactor, fluidized bed reactor, moving bed reactors and combinations thereof. The
process also includes making single-wall carbon nanotubes with catalysts comprising at
least one Group VIB or Group VIIIB metal on supports such as magnesia, zirconia, silica,
15 and alumina, where the catalyst is sulfided.